

REMARKS

Favorable reconsideration of this application, in light of the preceding amendments and following remarks, is respectfully requested.

Claims 1-28 are pending in this application. Claims 9, 10, 17 and 21 are amended. No claims are cancelled. Claims 1, 18 and 21 are independent claims.

Applicants note with appreciation the Examiner's acknowledgement that certified copies of all priority documents have been received by the U.S.P.T.O. Action, summary at 12.

Applicants also respectfully note the present action indicates that the drawings have been accepted by the Examiner. Action, summary at 10.

Allowable Subject Matter

Applicants note with appreciation the Examiner's indication that claim 15 defines allowable subject matter.

Claim Objections

Claim 17 is objected to for missing a period at the end of the claim. Applicants have amended claim 17 to comply with the Examiner's suggestion. Accordingly, Applicants respectfully request withdrawal of the above claim objection.

Rejections under 35 U.S.C. § 112

Claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner contends that the limitation "the reset circuit" lacks antecedent basis. Applicants have amended claim 10 to include the language "a reset circuit."

Accordingly, Applicants respectfully request that the rejection to claim 10 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1-4, 6-8, 10, 13, 14, 17, 18, 21-23 and 25-28 are rejected under 35 U.S.C. § 102(e) as being anticipated by Watanabe (U.S. Patent No. 7,102,677, herein “Watanabe”). Applicants respectfully traverse this rejection for the reasons detailed below.

Claim 1 recites *inter alia*, “each pixel generating a charge based on light incident thereon and selectively transferring the charge to the respective column line **based on a signal received from the respective row line.**” On Pg. 3 of the Office Action, the Examiner relies on Col. 2, Ln. 60-64, of Watanabe to disclose the above limitation. Also, the Examiner relies on Fig. 7 and Col. 1, Ln. 32-35, 41-48 of Watanabe to disclose a “pixel” as photodiode 1, a “column line” as vertical signal line 16 and a “row line” as clock line 15.

However, Col. 2, Ln. 60-64 of Watanabe merely discloses that “the amount of signal charge stored in the photodiode 1 (PD(i)) is read during the period t3.” As further explained at Col. 2, Ln. 10-13 of Watanabe, during period t3, “the transfer gate transistor 2 (TX(i)) is turned ON” and “the signal charge which is stored in the photodiode 1 (PD) is transferred to the charge detection node FD.” Therefore, turning ON transfer gate transistor 2 **only moves the charge in the photodiode 1 to node FD and does not move the charge to a “respective row line,”** as recited in claim 1. To further move the charge, as disclosed at Col. 2, Ln. 18-27, 35-40 of Watanabe, “reset gate transistor 3” must also be turned ON. Yet the charge still only “shifts from the photodiode 1 (PD) and the charge detection node FD to the drain of the reset gate transistor 3.” Then, “the pixel selection transistor 5 is turned ON” and “a detection signal obtained at the charge detection node FD...is output to the vertical signal line 16.” Therefore, in

Watanabe, the three transistors 2, 3, and 5 must be activated for the charge at photodiode 1 to be transferred to vertical signal line 16. Hence, as further illustrated in Fig. 7 of Watanabe, **three separate signals VTX, VRS, and VSE, and not one signal or “a signal,” as recited in claim 1, are needed for the charge at photodiode 1 to be transferred to vertical signal line 16.** Moreover, signals VTX and VRS are not received from a clock line 15 and therefore neither signal is “received from the respective row line,” as recited in claim 1. As such, Watanabe fails to disclose or teach “each pixel generating a charge based on light incident thereon and selectively transferring the charge to the respective column line **based on a signal received from the respective row line,**” as recited in claim 1.

Amended claim 21 recites *inter alia*, “selectively applying voltages to column lines of an image sensor based on a signal received from a row line, the voltages based on charges generated by pixels of the image sensor.” Therefore, similar to claim 1 above, claim 21 also only uses one signal, not multiple signals, to apply “voltages to column lines” where the voltages are “generated by pixels of the image sensor.” As explained above with respect to claim 1, Watanabe requires **three separate signals** VTX, VRS, and VSE to transfer the charge at photodiode 1 to a vertical signal line 16 and signals VRS and VSE are not received from a row line. As such, Watanabe fails to disclose “selectively applying voltages to column lines of an image sensor **based on a signal received from a row line,** the voltages based on charges generated by pixels of the image sensor,” as recited in claim 21.

For at least the foregoing reasons independent claims 1 and 21 are patentable. Independent claim 18 is at least somewhat similar to claim 1 and therefore patentable for at least somewhat similar reasons to claim 1. Dependent claims 2-4, 6-8, 10, 13, 14, 17, 22-23 and 25-28 are patentable by virtue of their dependency on one of independent claims 1 and 21.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the above rejection.

Rejections under 35 U.S.C. § 103

Claim 5

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view of Yang et al. (U.S. Patent No. 6,180,969, herein “Yang”). Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that Yang is combinable with Watanabe (which Applicants do not admit), Yang still fails to remedy the deficiencies of Watanabe with respect to independent claim 1. Applicants, therefore, respectfully request that the rejection to dependent claim 5 under 35 U.S.C. § 103(a) be withdrawn.

Claims 9, 11, 16, 19 and 24

Claims 9, 11, 16, 19 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view of Prater (U.S. Patent No. 5,645,537, herein “Prater”). Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that Prater is combinable with Watanabe (which Applicants do not admit), Prater still fails to remedy the deficiencies of Watanabe with respect to independent claims 1, 18 and 21. Applicants, therefore, respectfully request that the rejection to dependent claims 9, 11, 16, 19 and 24 under 35 U.S.C. § 103(a) be withdrawn.

Claims 12 and 20

Claims 12 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view of Prater in further view of Yang. Applicants respectfully traverse this rejection for the reasons detailed below.

Even assuming *arguendo* that Prater, Yang and Watanabe are combinable (which Applicants do not admit), Prater and Yang still fail to remedy the deficiencies of Watanabe with respect to independent claims 1 and 18. Applicants, therefore, respectfully request that the rejection to claims 12 and 20 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

In view of the above remarks and amendments, the Applicants respectfully submit that each of the pending objections and rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.


Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John A. Castellano, at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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By



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